

FOREST MANAGEMENT BY THE LOCAL PEOPLES IN ARU DISTRICT, SOUTHEAST MALUKU

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Abstract

The Aru people in Southeast Maluku province have for generations practiced participatory forest management based on local knowledge, traditional values and wisdom. Local people have utilized forest products to meet their needs, but not for commercial purposes. In contrast, the logging company, P.T. Budi Nyata, a branch of Jayanti Group, with its concession 98,000 ha of forest has been cutting many trees and using them as raw material for plywood industries in Ambon. Although the company appears to make an effort to replant new trees, instead of allowing forest degradation, because of the lack of inspection from governmental forestry agents and the lack of law enforcement, its replanting efforts are not fruitful.

Key words: participation, forest management, *sasi*, and Southeast Maluku.

Introduction

This research deals specifically with the Aru Islands in Southeast Maluku province of Indonesia. Well-known for its thousands of small islands, this province has great potential forest and marine resources. However, while Indonesia is generally rich in natural resources, Aru Islands are much more limited and have specialized natural resources upon which to draw for sustainable forestry.

The primary purpose of this paper is to discuss participatory forest management in the Aru district, where deforestation is taking place gradually. What is participatory forest management? Conceptually, participation means empowering people to mobilize their own capacities, be social actors rather passive subjects, to manage the resources, to make decisions and to control the activities that affect their lives. In practice, this means involving people in the identification of their priorities and needs, as well as project design, implementation and evaluation (Wells, 1990: 13).

Participation must therefore be seen as a fundamental building block and not just as another element of projects. The level of participation in local development (Aru District) should be taken into consideration. It appears that level of participation can be categorized into three approaches: (1) a participatory top down approach; (2) a professional-guided participatory approach; and (3) an indigenous bottom up approach. This paper aims to describe what category are practiced by the people of Aru. It is divided into six parts: an overview of general description of the research sites; discussion of a customary forest management system; a brief description of the utilization on forest products; an evaluation of forest utilization from the perspective of sustainable forestry; a description of the concept of "sasi" in forest practices; and a discussion of economic activities.

Methodology

Selection of the research sites

I conducted comparative studies on two villages (Jabulenga and Tinguatu): one subsists by fishing; the other by gathering forest products and hunting. Most of Aru people are fishermen, rather than farmers, because of the geographical conditions – Aru territory includes big and small islands and the sea. The selection two types of villages allows a fair representation of the people being investigated.

The transportation system is one major constraint of field research in Aru, as Aru is made up of many islands. On the other hand, sea factor also becomes indispensable item must be noticed whether in west and east season (*musim Barat dan musim Timur*). I identify this reason for any researchers to be more success in conducting a field research in the future in this region.

The Aru district (see figure) had a population of 62,893 in August, 1998 (32,048 males, 32,299 females, in 12,713 families), an annual population growth of 2.41 percent and a geographical area of 6,292 sq km. The most populated is located in Dobo, the capital of Aru with 589 persons/sq km and sq km and the lowest is about 2 persons/sq km in Tinguatu village. Most Tinguatu people subsist on are hunting in the forest.

Field data collection

My field research was carried out from middle of August to the first of September 1998. Issues studied were customary forest or land management systems, land tenure systems, utilization of forest products, changes in forest utilization, the influence of *sasi* principles on forest management systems, economic activities, and models of participatory forest management.

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I used three methods for collecting data: a library research; interviews with heads of twelve households (eleven of whom were customary elders), and participatory observation. With this approach, I strove to understand and see how the local people hunt, fish, gather forest products, cultivate the land, and other activities.

A. General Description

1. Geography

This research deals specifically with one Indonesian province, Moluccas (Maluku). This province consists of 1,027 islands for which Maluku is famous. The total area is 851,000 km², of which the sea surface is 765,272 sq km, and land surface 85,728 sq km. The province is situated between 30 and 8 degrees south latitude and between 124 degrees and 135 degrees east longitude (Moluccas in Figures, 1996).

The land is mountainous and lakes can be found in almost all regencies. There are 16 mountains, the highest being Mount Binaya with an altitude of 3,055 m, located on the island of Seram, in central Moluccas.

Administratively, the province of Moluccas consists of four regencies (*Kabupaten*), namely, southeast Maluku, central Maluku, north Maluku, and central Halmahera; one municipality (Kota Madya Ambon); fifty six (56) districts (*Kecamatan*) and 1,516 villages (*desa*).

The focus of this field research, the Aru Islands, is located in the southeast Moluccas (see map). Dobo, the capital of Aru is about three hours by Cessna aircraft from Ambon City or one night by ship. The Aru Islands covers 6,269 sq km, of which the land area is 1,200 sq km, divided into 5 big islands and many small islands. The five big islands are: Trangan, Maikoor, Wokam, Kobror, and Kola. The Aru district consists of 119 villages, including 117 larger villages (*desa*), and 2 hamlets (*kelurahan*), Siwalima and Galeubu, located in Dobo.

2. Climate

The Moluccas Islands have a tropical and seasonal climate, which is very much affected by the seas and the rhythm of the seasonal climate which prevails here.

There are two seasons in the Aru Islands. The west season is from October to March, and is characterised by strong winds, and abundant fish, which is a bounty for fishermen, whose incomes rapidly are good in this season. The east season is from April to August, and is characterised by lighter winds, a lack of fish, and poorer fishing conditions. September is the transitional month, usually accompanied by strong winds and rain.

According to the Meteorological and Geophysical Agency of the Moluccas, the average temperature ranges from 24.2 to 27.3 degrees C. The minimum and maximum temperatures at Geser are 20.5 C and 29.0 degrees C. Humidity in the Moluccas is relatively high, with averages ranging from 74.0 to 87.5 percent, owing to the tropical and maritime character of the region.

3. Fauna and Flora

There are many animals in Aru island, including deer, pig, crocodile, dog, macropus major (kanguru), civet (kastuari), and cassowary (kasuari), etc. Birds include cendrawasih (bird of paradise), red nuri, and kakak tua (white, red, black (king) and green cockatoo) (Burton, 1962). The catching of some birds is strictly forbidden for local people by the Nature Protection and Conservation Agency of the Ministry of Forestry, such as cendrawasih and kakak tua. However, but in reality the trading of birds still takes place and is difficult to control in the field.

Maluku is rich in forest resources. The total forest area is 5,758,172 ha. The forests are divided into three categories: protection forest occupying 1,809,634 ha and designated to preserve water resources, prevent soil erosion and conserve the overall environment; conservation forest occupying 2,294,913 ha, which can be converted to other land uses; and limited production forest occupying 1,653,525 ha which can be harvested under government-approved management plans. Thirty-six logging companies are registered and operate for plywood production in some parts of the regencies (Moluccas in Figures, 1996: 347-349).

This research was conducted in Southeast Maluku which has 261,882 ha for limited production forest, 207,116 ha for conservation forest, and 26,260 ha for protected forest. This research concentrates on the Aru Islands contain 66,487 ha of nature conservation forest, 217,866 ha of limited production forest, and 457,991 ha of conservation forest. one logging company is working in Aru, P.T. Budhi Nyata, which is a branch of Jayanti Group Logging based Sk No.114/Kpts/II/1989 with 98,000 ha of forest. Many species of trees are logged, including kayu Besi (*Eusideroxylon Zwageri*), kayu Kenari (*Canarium amboinense*) kayu Gofasa (*Vitex cofassus*), kayu Merah (*Eugenia Rumphii*), and kayu Bawang (*Dysoxylum euphlebium*). In addition, local people cut kayu Burung, kayu Dompot, kayu Nyato, and kayu Gofasa for house-building and furniture-making. Budhi Nyata absorbs 312 workers, some of whom are locals, but the majority of workers come from outside the Aru Islands. Forest degradation is occurring on the islands, for example on Wokam and Maikoor Islands. The main causes are the lack of control by forest administrators over the exploitation of forests by Budhi Nyata.

4. Population

The population of Maluku in 1995 was 2,088,516, with an annual agrowth rate of 2.35 percent. . In southeast

Maluku, Tual is the capital city, with a population of 307,231 in 1995 (1.28 percent growth rate) and in 1990 288,248 (1.64 percent). Population density in Southeast Maluku was 11.55 per sq km in 1990 and 12.30 in 1995. In Maluku province it was 24.34 in 1995 and 21.67 in 1990.

This research was conducted in two villages of Wokam Island. Jabulenga village has a population of 301 (165 women, 136 men in 67 families). Tunguatu village has a population of about 235 (121 women, 114 men in 51 families). The villages are served by only two private elementary schools which were built in 1982, but the physical conditions of schools and lack of teachers has resulted in a low quality of education.

The age composition in Aru is as follows: under five years old (-5 years) 14,632 (23.26 percent); schooling age (5-19 years) 16,752 (26.64 percent); working (20-55 years) 22,756 (36.18 percent); aged (56 and up) 8,753 (13.92 percent). Reliable data on the levels of education were not available. One hundred twenty-six elementary school; 9 secondary schools; and five high schools (two private and three governmental schools) are registered in Aru. Almost 83 percent of children of schooling age attend school.

5. Residential Settlements

The majority of settlements in Aru and surrounding islands occupy an area between the seaside and 200 to 300 meters from the beach. The land they occupy is relatively flat. In densely populated Dobo, the capital of Aru, the settlement has spread inland and is not concentrated just on the seaside. In contrast, on other islands most settlements are located on the seaside, conveniently situated for fishermen.

6. Transportation System

The Aru Islands are served by sea, land and air transportation facilities. Air transportation links Ambon via Tual (the capital of the regency in Southeast Maluku) and Aru twice a week, on Tuesday and Thursday. Land transportation by car and motorcycle also serves Dobo. Sea is the most important means of transport connecting some islands. For example, a ferry connects Dobo with Tual twice a week, a pioneer ship (*kapal perintis*) also runs twice a week, and a big ship runs monthly (Bukit Siguntang). Meanwhile, other islands are accessible from Dobo by outboard motorboats which carry six to ten passengers.

7. Administrative Organization

Organization by definition is the manner in which the branches of services, etc., are arranged, or individuals systematically united for some work (Webster, 1988: 262). Conceptually, organization is coordination activities of humans which is planned to achieve goals, throughout a responsible job description and delegation of authority to their functions. Many experts of theory organization such as, Chester Barnard (1938) said, "just human activities which related an effort to achieve a certain goal is called a significant organization" (Schein, 1980:17). Moroaan (1986) made an analysis of organization as a system of political activity from the perspective of comparative government can place our understanding of organization in a clear perspective. However, in order to understand the organization the day-to-day political dynamics of organization, it is also necessary to explore the detailed process through which people engage in politics. Therefore, of the formal administrative organization in Aru means the form of "governmental structure", from the lowest position at the village level, to district, and province level. Herewith, I describe the formation of administrative organization in the research site.

B. Customary Forest (land) Management System

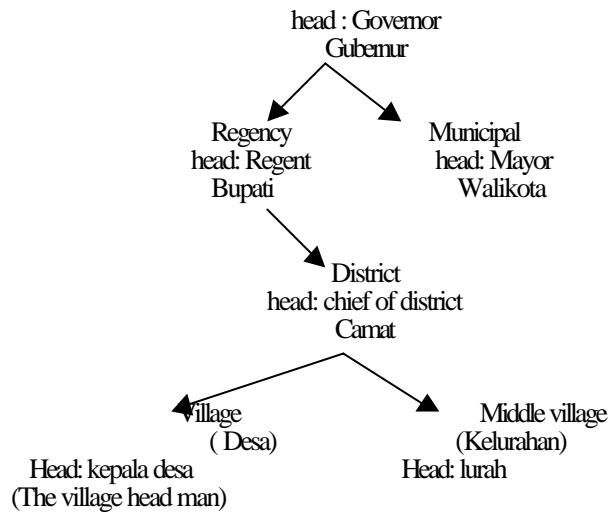
1. Land Category

It is necessary to discuss land categories recognized by residents in the Aru Island. This discussion covers local communities, owners of big estate plantations, and transmigrants who utilize land rights for their needs. There are two categories for land:

(1) Customary land rights (*tanah adat* or *Petuanan*). This land category belongs to lineage (*marga*, umum (*public*) and individual. For example, individual rights are defined as their relationship to the complementary rights of the community to which the individual belongs and from the heritage ones parents are derived. This characteristic is recognized by village traditions and accepted by heads of village. Meanwhile, lineage (*marga*) land rights are defined publicly recognized by the norms of tradition and generally accepted by communities. And public land rights are usually owned by villages and have advantage for the village head man. As an illustration, under traditional Indonesian law, a "right of use" is acquired on a parcel of land when one established temporary or shifting cultivation and gardening; or ownership on land was acquired if one established more permanent cultivation. Thus, when describing these rights in English, one must use terms such as "ownership" and "right of use", but these are only approximations. Although one uses the terms, one must put aside the principles of Western law to which they are normally attached. The traditional Indonesian rights to which they refer have no exact equivalents in Western law (Evers, 1995:4).

Figure 1. Administrative Organization in Indonesian government*

Province



Note : 1. Aru district is divided into 117 villages. Two middle-sized villages (*kelurahan*) are Siwalima and Galedubu in Dobo, the capital of Aru.

2. Based on Ministry of Domestic Affairs regulation No.5/1979, there are three functions of the village head man:

- a. To execute decentralization on village issues.
- b. To do concentration (to request tax of land and building from villagers).
- c. To execute village services for example, to do religious ceremonies, marriage registration and death services.

3. The appointment of the village head man (*kepala desa*) is by general election in village which should not be interfered by governmental bureaucrats and agreed by regent (*Bupati*) through chief of the district. On the other hand, the *Lurah* (chief of middle village), is appointed formally by regent through the chief of district (*Camat*).

4. In the village, there are many functions: (1) chief of village (*kepala desa*), a secretary (*sekretaris*), and heads of five sections (KAUR), including head of administration (KAUR Pemerintahan), development, social welfare, security, and general affairs.

(2) *Ondememing (Perkebunan)* land rights for estate plantations. This category belongs to the owner of estate plantation since the Dutch colonial reform in 1990s. Most owners planted hundreds of coconut trees (*pohon kelapa*) in many islands in Aru district, including Babi, Hokmar, Ujir, Toba, Patajuring, etc. They usually got concessions for land tenure of 20 to 50 years. However, today almost 65 percent of owners have not extended their permits and return to the *Board of Land Registry* (Kantor Badan Pertanahan) Kabupaten in Tual.

Transmigrants utilize land rights usually found from conservation forest areas which were converted for inhabitant and farming. On Aru Islands a transmigration program has been in place since 1987 on Maikor Island. Most of inhabitants came from Java. This mechanism usually coordinated intra governmental policy for regional and national planning. For example, Ministry of Transmigration consulted the Ministry of Forestry on land utilization in certain areas for location of transmigration.

2. Land Tenure System

Prior to 1960, land in Indonesia was divided into two categories : (1) That so-called "Western land" (governed by the Dutch Civil Code) and (2) "Indonesian land" (governed by unwritten traditional *adat* law) (Evers, 1995:4). However, current land law in Indonesia is based on the Basic Agrarian Law (BAL) of 1960 (Law No.5/1960). In 1960 the BAL abolished the distinction between "Western and Indonesian" land and pronounced the principles of unwritten *adat* law applicable to all land in Indonesia as the basis for modern written Indonesia land law. Although the BAL (Art.3) explicitly recognizes "hak ulayat" (communal rights), it has made them subject to certain conditions. However, in reality, after the Forestry law in 1967, that *hak ulayat* communal rights in the Outer Islands were not recognized any longer by the government, a source of land conflict between local people, logging concessionaires and big estate plantations. In this conflict, the government usually takes the side of and maintains relations with the logging companies, since it receives benefits (stumpage fees, or replanting fees) from the owners of concessions. This phenomenon occurs in other Aru Islands where communal rights are no longer recognized. Fifteen sq km from the village, local people could utilize forest products for their daily needs such as housing material, furniture, fishing tools, etc. On the other hand, local people could utilize "communal forest" for their needs as communal land rights.

There are three categories of soil in the Aru Islands: black soil which is fertile to plant forest trees and agricultural crops; white and yellow soil below 1 meter in depth, which provides mining materials, and mix of yellow and white soil below a depth of 5 meters, which is for other mining.

3. Usufruct of trees

Recently agreement was reached between customary elders in the villages of Jabulenga and Tinguatu and the Forestry Agency officials in Tual on forest management within 15 km of each village. This agreement emphasizes that local people have access to manage forests and utilize forest products to improve their welfare. According to elders, the cendrawasih (bird of paradise) has always sung in the morning and evening in a certain tree. That tree marks the distance of about 15 km from the village. The forest within the range of 15 km, can empower the socio-economic conditions of the local people. If used as a source for housing materials, fishing tools, hunting tools and furniture-making. By the agreement, the villagers may not sell forest products to any companies outside their villages, but may sell furniture to Dobo or other villages in a limited manner.

The villagers consider the forest resources to be vital capital for their sustainability in the future. From this perspective, both the customary forest management system and traditional rules are maintained. If any family of local people need wood to build a house or make furniture, the trees they cut must be over 65 cm in diameter, and they must replant. Elders say that such tree rotation will ensure sustainability of the forests and guarantee timber stocks for the future generations.

4. Conflict over land

Conflicts over land have occurred widely in Indonesian provinces. The main factor of the conflicts is "justice" on land utilization and ecological issues. Conflicts occur in relation to oil, mining, and forestry industries and are widely reported on the Indonesian Outer Islands. As one example, a conflict happened in 1990 involving Tabbeyan and Sentosa, two village communities in the sub-district of Unurunguay (Irian Jaya) versus YLS Logging Concessionaires from Korea (Tjitrajaja, 1993). A conflict also occurred in Muara Gusik (Kutai, East Kalimantan) over 24,000 ha of forest land between local people and the logging company P.T. ITCI (Hidayat, 1997). Other conflicts involved river and land contamination issues involving the mining company P.T. Freeport and the local people of Amungme and other ethnic groups.

Large-scale industrial activity in southeast Maluku is limited, especially in Aru, although fishing (DGS), pearl production, and logging industries exist. Conflicts over marine pollution and marine use rights rarely occur between local people and private industries, but land-based conflicts occur. Examples include (1) a conflict over a logging road, annexed land and using a bulldozer to cut trees in Jabulenga by the logging company P.T. Budhi Nyata in 1994 and 1995. The conflict was resolved by the company being required to pay compensation known as *sari pinang* in traditional customs. (2) a conflict over territorial boundaries between local people in Lorong, Trangan Island and Forestry Agency of Tual. According to the local people the land was in their territory and was important for their resources. The solution was reached after local people and the *Muspika* (district administration), which consist of district chief (*camat*), police sector (*polsek*) and military sector commander (*koramil*) work together with forestry officials, in what was considered a win-win solution. (3) a conflict on Tarangan island in 1995 over the boundary of forest production and customary land of the local people. The solution of conflict is to involve two approaches. One is a discussion involving customary elders, local groups, and forestry officials to reevaluate the boundaries. Another is the payment of compensation at market price from the HPH concessionaire to the local people.

C. The Utilization of Forest Products

1. Forest products utilized by social classes

There are two social classes. The upper class consists of customary elders (*tokoh-tokoh adat*) and religious leaders (*tokoh agama/kristen*), who inherit privileges, traditions and agricultural land. In contrast, the middle class consists of ordinary people such as fisherman, craftsman, farmers, and hunters, who own rather small plots of agricultural land, but are diligent workers.

The upper class prefers to utilize high quality trees for housing material and furniture, including kayu besi (*Eusideroxylon zwageri*), kayu Gofasa (*Vitex cofassus*), kayu Lengkuah, and kayu Merah (*Eugenia rumphii*). These trees are well-known for quality and have a high price. The middle class prefers to utilize trees of medium quality and price such as kayu Kenari (*Canarium amboinense*), kayu Nyato (*Palaquium eriocalyx*), kayu Bawang (*Dysoxylum euphlebioides*), kayu Burung (*Corypha utan*), and kayu Nyato, etc. In relation to non-wood forest products, among this group hunts animals such as pig and deer (cervidae) and birds such as cendrawasih (bird of paradise), kanguru (*Macropus major*), kakak tua (cockatoo), kastuari (civet), kasuari (cassowary), burung Nuri, etc. The hunting area is in communal forests within a radius of 6 to 15 km from the village.

2. Forest utilization among land categories

As mentioned above, besides communal forests which can be used for promotion of social welfare, local people also own fields within 2 to 4 km of the village. In these gardens they usually cultivate various fruits including pisang (bananas), singkong (kasbi), ubi, sukun, kelapa (coconut), bambu (bamboo), mangga (mango), jeruk lemon china, jeruk lemon dily, jeruk bali, kedondong, sagu, etc.

3. Changes in forest utilization

There are several efforts which can change forest utilization. First, the activities of forest trees cutting in production

forests which are done by local people. The production forest is converted to agriculture. Second, the cutting of logging and making roads in the pristine lands for company transportation.

4. The sustainability on forest utilization

The relation between man and forest in Aru islands is very close. Customary elders teach the young that they live and eat from the earth which they live on, and that forest resources and the environment have significance in their lives. They teach how to maintain sustainable forest resources, using the concept of "Sasi" known among local people for participating and maintaining forest management.

The rules of *sasi* on forests include:

- (1) people may not light fires in the forest during the summer.
- (2) people may not cut trees below 65 cm in diameter.
- (3) people (especially women) may not to catch cendrawasih (bird of paradise) in the forest.
- (4) people may not cut trees in large quantity for commercial purposes.

Anyone who violates the rules is punished by local tradition and more formally by of the Forestry District Agency (Bagian Kesatuan Pemangkuan Hutan/KPH Pulau-Pulau Aru).

D. Sasi in Practice

Conceptually, *sasi* is a local institution that exists in Maluku, which manages behavior of society in maintaining and harvesting natural resources whether on land or sea. Practiced especially in the middle and southeast Maluku regencies, *sasi* or *yutut* is famous in the Kei and Aru Islands as tool to prohibit admittance of any person or the taking of items from certain areas at certain times. *Sasi* in southeast Maluku regencies, especially in the Aru Islands is a manifestation of the traditional legal system which is called *Larful Ngabal* (*Larful* means blood, and *ngabal* means spear, derived from Bali). In this context, the *sasi* system is regarded as criminal and civil law. "Itlok fo ohoi imian fo nuhu," means "we live and eat from earth that we occupy" (Kita hidup dan makan dari tanah yang kita tempati). This proverb tells us, that close relation happens between man which needs natural resources to live and the nature which produces those materials (Rahail, 1993). The word "land" refers to people, that formerly almost people in Aru which have land orientation to fulfill their daily life. But, since fishing tools and technology have made fishing easier since the end of 1970s and the influence of the sea is more dominant than land, 70 percent of people prefer to work in sea sector today, compared to only 30 percent in cultivating and gardening.

The existence of land *sasi* is older than sea *sasi*. Land *sasi* includes (1) *sasi tetaww* for protecting sago (sago palm) with individual ownership; (2) *sasi walut* is for protecting sago areas with communal rights; (3) *sasi mitu* to identify sacred places and prohibit admittance for any person to take fruits and other natural resources except sago trees. These three types of land *sasi* protect natural resources owned individually and communally. Meanwhile, sea *sasi* is practiced, as local people consider that sea resources have an economic values similar to land resources.

Both Christian and Islamic values influence the management of sea and land *sasi*, as described below.

(1) Individual *sasi* (*sasi perorangan*) is used to protect land resources owned individually. For example, the owner of orange or coconut trees, has to promise in front of the Priest (*Pendeta*) not to harvest them and to maintain them for about 6-7 months for oranges and about 3-4 years for coconuts, which provides ecological balance and sustainability of forests. Later on, the owner will give a part of his harvest yields to church services. On the other hand, for the Muslims, individual *sasi* functions as an exercise for a strong belief (*Iman*). In that way, the person will always do good for society.

(2) Public *sasi* (*sasi umum*) is realized based on discussion (*musyawarah*) for all people which have rights as citizen for protecting all land and sea resources. This public *sasi* is not based on religion and ethnic groups, but independent operation for local people. Its goal is to maintain natural resources whether land and sea and also to promote efficiency for individuals and people. The management of this *sasi* is done by village institution for example *LKMD* (Community Village of Self Defense Institute) which is led by a *kewang* (a kind of customary elder). The *kewang* must set up the period of *sasi*, the plant species to be planted, rewards and punishments and shares of village development. In terms of public *sasi* in Jabulenga, Tunguatu village and other Aru Islands, the practice of sea *sasi* are organized for Tripang (sea animal used as an ingredient in soup). This commodity has an economic value on the market especially in Jakarta, Surabaya, Hong Kong and Tokyo. The harvest of tripang usually takes place annually by a group of local people in October. The ceremony of harvesting tripang involves *siri pinang* (traditional ceremony) attended by local people, including the village head man, customary elder, LKMD staff, and Priest. The function of the priest in this ceremony is to lead a prayer to Almighty God and ask his blessing and mercy for today and in the future.

(3) Church *sasi* (*sasi gereja*) is realized by all church attendants to ask God to protect land and sea resources and to improve the quality of society life.

(4) Village *sasi* (*sasi negeri*) is used to resolve conflicts between local villagers about land boundaries and sea territory.

Obviously, from above description, that *sasi* institution has a positive function for social mobilization, voluntary collective works for village development, social control and maintenance of natural resource management. Those functions are not controlled by formal organization or government initiative, but rather by non-governmental organizations that arise from local people and customary elders to accelerate local development, especially for agricultural and fishing sectors.

Conclusion

The Aru Islands are rich in forest resources. Various trees of high quality can be sold in the market such as, kayu Besi (*Eusideroxylon zwageri*), kayu Gofasa (*Vitex cofassus*), kayu Merah (*Eugenia rumphii*). The problem here is how to develop and manage forest resources with the participation of the local people. The roles of customary elders and groups in society are important as inspectors and to give guidance and information to the whole community on how to manage their forest resources and maintain local knowledge, traditional values and wisdom. This is needed for sustainable forest resources.

Apparently, the existence of HPH concession holder P.T. Budhi Nyata is one of the challenges on forest resources in the Aru Islands, leading to gradual deforestation gradually. In the long run, if the program of replanting and the inspections from forestry officials and local people are not given adequate attention, the forest resources will be endangered.

REFERENCES

1. Antariksa, IG.P (1995), Hak Ulayat Laut Masyarakat Maritim : Kasus Kecamatan Pulau-pulau Kei Kecil- Maluku Tenggara, PMB, LIPI.
2. Burton, Maurice (1962), University Dictionary of Mammals of the World, New York: Thomas Y Cornell Company.
3. Evers, J.Pieter (1995), "Preliminary Policy and Legal Questions about Recognizing Traditional land in Indonesia," in EKONESIA: A Journal of Indonesian Human Ecology, No.3, September.
4. Edgar H. Schein (1980), Organizational Psychology, Prentice-Hall Inc, Englewood.
5. Heyne, K (1987), Tumbuhan Berguna Indonesia, Jilid IV, Badan Litbang Kehutanan Jakarta.
6. Hidayat, Herman (1997), "HPH Bina Desa Hutan dan Masyarakat Muara Gusik, Kutai-Kaltim," dalam Jurnal ANALISIS, Jakarta: CSIS, Agustus-September, No.3, Tahun XXVI.
7. Inoue, Makoto (1998), "Participatory Forest Management," IGES Forest Conservation Project, Kanagawa, Japan.
8. Kathryn, A Monk (Eds) (1997), The Ecology of Nusa Tenggara and Maluku, Volume V, Dalhousie University.
9. Koentjaraningrat (1991), Pengantar Ilmu Antropologi, Jakarta: P.T. Rineka Cipta.
10. Moluccas in Figures, (1996), BPS Kantor Statistik Propinsi Maluku.
11. Moroa, Gareth (1986), Images of Organization, New Delhi: Sage Publication.
12. Rahail, J. P (1993), Larful Ngabal, Jakarta: Yayasan Sejati.
13. Ruttan, V. W (1981), "Tree Cases of Induced Institutional Innovation," dalam Public Choice and Rural Development, Edited by C.S. Russel and N.K.Nicholson, Johns Hopkins University Press, Maryland, USA.
14. Suparlan, Parsudi (1995), Orang Sakai di Riau : Masyarakat Terasing dalam Masyarakat Indonesia, Jakarta: Yayasan Obor.
15. Tjitradjaja, Iwan (1993), "Differential Access to Resources and Conflict Resolution in a Forest Concession in Irian Jaya," dalam EKONESIA: A Journal of Indonesian Human Ecology, UI P3AE, Vol. 1, No. 1, May.
16. Wells, Michael P (1990), Biodiversity Conservation and Local People's Development Aspirations, USA: New Priorities.
17. Webster's (1988), Thesaurus and Dictionary, Melbourne: Budget Books, Inc.

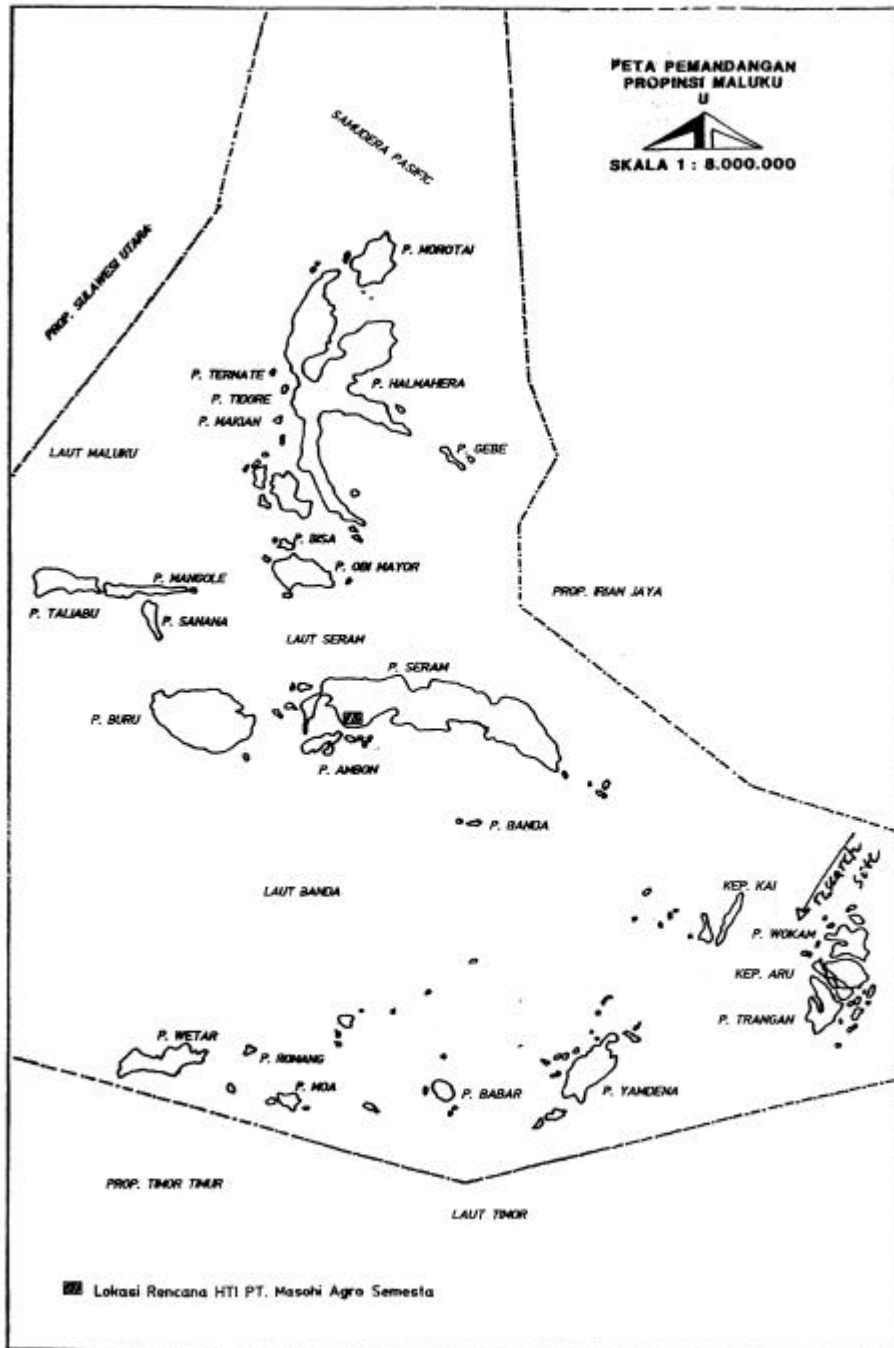


Figure 1. Map of Maluku Province

